

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-24. (Cancelled)

25. (New) Apparatus comprising a vessel and an injection device inside said vessel for carrying out separate injection of first and second fluids which are in two different physical states or which are not miscible, and for homogeneous distribution in the vessel of at least one of the fluids downstream of said device, said device comprising a chamber (5) which is supplied by the first fluid, and which chamber comprises orifices (7, 8) for the passage of the first fluid, said device further comprising elongated conduits extending downwardly through said chamber, said conduits being imperforate within said chamber and having free ends outside said chamber acting as a passage for the second fluid through said chamber, said apparatus further comprising means for introducing the first fluid into the chamber.

26. (New) Apparatus according to claim 25, wherein said vessel is a distillation column in which the first fluid is essentially liquid and the second fluid is essentially gaseous, and said apparatus further comprising means such that said essentially gaseous fluid traverses said device from downstream to upstream via said conduits in said chamber, and in that the flow of the essentially gaseous fluid is upwards and the flow of essentially liquid fluid is downwards.

27. (New) Apparatus according to claim 25, wherein said vessel is a reactor in which at least one bed of granular solid (12) is disposed downstream of said injection device and including means whereby the flows of the two fluids are downwards and co-current, and the second fluid is injected into the vessel at a point upstream of said device.

28. (New) Apparatus according to claim 25, wherein said vessel comprises a head section, and said device is placed close to the head section of said vessel.

29. (New) Apparatus according to claim 25, comprising conduits (4) extending below the chamber (5) by a distance h_t (10).

30. (New) Apparatus according to claim 29, in which said distance h_t (10) is 1 to 100 mm.

31. (New) Apparatus according to claim 27, in which the distance between the end (13) of the conduits (4) and the top of the bed (12) is 0 to about 50 mm, 0 excluded.

32. (New) Apparatus according to claim 25, in which said orifices allowing passage of the first fluid are holes distributed between the conduits for injecting the second fluid.

33. (New) Apparatus according to claim 25, in which said orifices for passage of the first fluid are annular slots located around the conduits for injecting the second fluid.

34. (New) Apparatus according to claim 25, wherein said vessel is a distillation column.

35. (New) An apparatus according to claim 25, wherein said vessel is a distillation column comprising a head section, in which the first fluid is essentially liquid and the second fluid is essentially gaseous, the essentially gaseous fluid traverses said device from downstream to upstream via said conduits in said column, wherein said essentially gaseous fluid flows upwards and the essentially liquid fluid flows downwards, wherein said device is placed close to the head section of said vessel, the distance between the end of said conduits (4) and the top of at least one bed of granular solid (12) is 0 to about 50 mm, 0 excluded, and said orifices are annular slots located around the conduits for inserting said second fluid.

36. (New) An apparatus according to claim 25, wherein said vessel is a reactor comprising a head section, in which at least one bed of granular solid (12) is disposed downstream of said injection device, the flows of the two fluids are downwards and co-current, the second fluid is injected into the vessel at a point upstream of said device, said device is placed close to the head section of said vessel, and the distance between the end of said conduits (4) and the top of said bed (12) is 0 to about 50 mm, 0 excluded.

37. (New) An apparatus according to claim 25, wherein the device is located at a certain height within the vessel and where the means for introducing the first fluid is located at about said certain height.